Replacement claims for U.S. Patent 7,397,741

1. A recording medium, comprising:

a data area disposed between a lead-in area and a lead-out area, including a user data area to record data, and at least a spare area having a replacement area to store data to replace a defective area occurring in the user data area and position information regarding the defective area; and

a defect management area arranged in at least one of the lead-in area and the lead-out area, to store defect information identifying positions of the defective area and the replacement area.

2. The recording medium of claim 1, wherein the defect information includes defect management information to manage the defect information, and wherein the defect management information is updated in the defect management area every recording operation or in response to a predetermined number of recording operations.

3. The recording medium of claim 2, further comprising a temporary defect management area arranged in one of the lead-in area and the lead-out area in which temporary management information lastly updated is recorded.

4. The recording medium of claim 2, wherein the defect information includes a space bit map to provide information for differentiating available clusters from unavailable clusters on the recording medium.

5. (Renumbered) The recording medium of claim 1, wherein the replacement area further comprises state information regarding the defective area.

6. (Renumbered) The recording medium of claim 5, wherein the position information and the state information are error-correction code encoded during ECC encoding of data recorded in the replacement area.

7. (Renumbered) An apparatus, comprising:

a recording/reading unit to record/read data with respect to a recording medium comprising a data area disposed between a lead-in area and a lead-out area, including a user data area and at least a spare area having a replacement area to replace a defective area occurring in the user data area; and a defect management area arranged

in one of the lead-in area and the lead-out area; and

a controller arranged to control the recording/reading unit to record data for replacing the defective area of the recording medium, and position information regarding the defective area, on the replacement area located in the spare area of the recording medium, and to record defect information identifying positions of the defective area and the replacement area in the defect management area.

8. (Renumbered) The apparatus of claim 7, wherein the controller controls the recording/reading unit to record defect information lastly recorded in the defect management area, during a finalizing of the recording medium.

9. (Renumbered) The apparatus of claim 7, wherein the replacement area further comprises the state information regarding the defective area.

10. (Renumbered) The apparatus of claim 9, wherein the position information and the state information are error-correction code encoded during ECC encoding of data recorded in the replacement area.